

Philippines Hornbills Conservation Programme



TAWI-TAWI

BIODIVERSITY CONSERVATION PROJECT

Lisa J. Paguntalan, Philip Godfrey Jakosalem, Romulo Quemado,
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and ⁵Ernest D. Sali**

With contributions from

⁴Dante A. Oporto, ⁵Alcadra I. Sabal

¹Philippines Biodiversity Conservation Foundation Inc.
c/o Negros Forest Ecological Foundation Inc.
South Capitol Road, Bacolod City, Philippines

²Office of the Commander
Headquarters, Northern Luzon Command
Philippine Marine Corps
Armed Forces of the Philippines
Camp Servillano Aquino, Tarlac City

³Office of the Municipal Mayor
Municipality of Panglima Sugala
Tawi-Tawi Province

⁴Provincial Environment and Natural Resources Office - Zamboanga Sibugay
DENR Region – 9
Ipil, Zamboanga Sibugay

⁵Provincial Environment and Natural Resources Office – Bongao
DENR Autonomous Region of Muslim Mindanao
Bongao, Tawi-Tawi



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II. SUMMARY

A total of 74 species of birds were recorded during the visit in Tawi-Tawi of which 10 are threatened and 20 are subspecies endemic to Sulu and Tawi-Tawi archipelago. Threatened birds recorded include four Critically endangered; one Endangered and two Vulnerable. We also report five new records for Tawi-Tawi, eight new records for Bongao Island and the first bird records for Panguan and Maldanas Islands including a description of an unidentified bird.

The lowland forest of Tawi-Tawi is threatened primarily with illegal logging and mining with much of the remaining forests now concentrated in the Municipality of Panglima Sugala (formerly Balimbing). An access road leading towards an abandoned mining operation lead to a dirt road to Upper Malum watershed where populations of threatened endemic species of Tawi-Tawi still survives. The Upper Malum watershed serves as the main source of water to at least the municipalities of Panglima Sugala and Tandubas. This also happens to be the largest remaining forests of Sulu archipelago.

The local government of Panglima Sugala primarily drives the conservation initiatives in the area. Since the start of the project in 30 September 2017, a number of developments had occurred: rapid site assessment in Upper Malum watershed in Panglima Sugala, school lectures in both Bongao and Panglima Sugala, billboards strategically located to showcase endemic wildlife of Tawi-Tawi, community consultations with local government of Panglima Sugala, learning visits of key community leaders and members from Upper Malum Watershed to protected areas in Zamboanga City, conduct of community-based bio-monitoring training and workshop as well as strategic meetings with Congresswoman Ruby Sahali for the possibility of declaring the remaining forests of Panglima Sugala as part of the National Integrated Protected Areas (NIPAS) of the Philippines.

A biodiversity conservation framework plan that incorporated the action points identified during the workshop last 15 December 2017 attended by key community leaders from Upper Malum of Barangay Magsagaw, Panglima Sugala, representatives from Panglima Sugala local government including two municipal councilors and Mayor Rejie Sahali-Generale; DENR ARMM (PENRO Tawi-Tawi and CENROs Bongao and Panglima Sugala); DENR PENRO Zamboanga Sibugay, DENR Region 6 and Philippines Biodiversity Conservation Foundation Inc. The framework plan also took into consideration results from consultation meetings with key persons from the academe e.g. Mindanao State University - Tawi-Tawi College of Technology and Oceanography, Tawi-Tawi Regional Agricultural College, Provincial Government of Tawi-Tawi, Protect Wildlife Project of USAID and local communities of barangay Magsagaw and Panglima Sugala. This document summarizes the results of the activities conducted as well as the planned activities for the conservation of Tawi-Tawi biodiversity.

III. INTRODUCTION

The Philippines is considered a mega-diversity country and a global biodiversity hotspot (Collar *et al* 1999). It's archipelagic nature and bio-geographic history has largely contributed to the high endemism of each island and island groups or faunal regions (Heaney *et al* 1998; Heaney and Regalado 1996; Heaney *et al* 2000). The distinctiveness of each island group therefore requires the conservation of habitats with high concentrations of endemic and restricted-range species. This includes the Sulu/Tawi-Tawi faunal region.

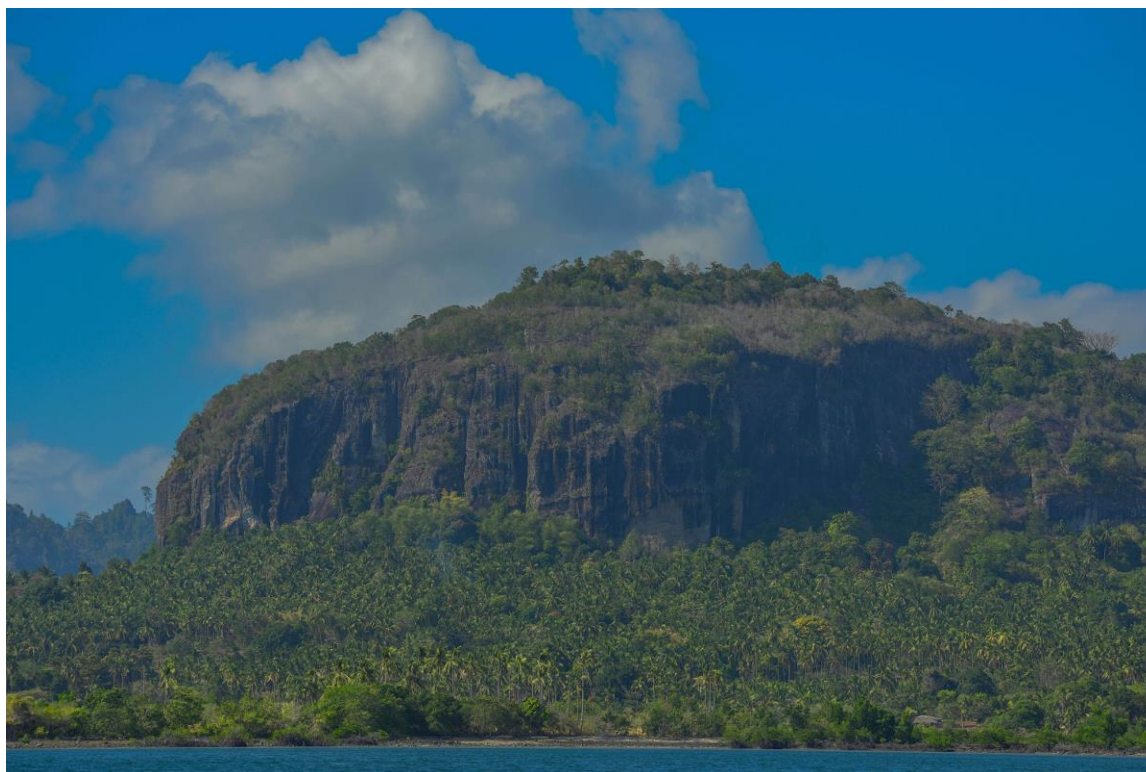


Fig. 1. View of Bud Bongao peak very little forest remaining and coconut plantation. (Photo by Bim Quemado).

There are at least seven species and 23 subspecies of birds known to occur only in Sulu/Tawi-Tawi archipelago and nowhere else in the world (Table 1). Some of these endemic subspecies are likely to be split in the future. In addition, a total of 17 threatened species of birds occur on the area including five Critically Endangered species, four of which occurs only in Tawi-Tawi/Sulu archipelago. Of the 17-threatened species, 13 occur in Tawi-Tawi and at least two Critically Endangered species survive only in the remaining forests of Panglima Sugala and Languyan municipalities (Tabaranza *et al* 2008; Allen 1998; Collar *et al* 1999).

The uniqueness of Tawi-Tawi Island is further exacerbated by the presence of species that are Sundaic in origin. The status of some species remains unclear -

for instance it is not known whether records of Blue-winged Pitta *Pitta moluccensis* and Chestnut-capped Thrush *Zoothera interpres* involve breeding or vagrant birds. These and the Philippine species are supplemented by a number of small-island nomadic species such as Nicobar Pigeon *Caloenas nicobarica* and Grey Imperial-Pigeon *Ducula pickeringii* (Dutson 1996).



Fig. 2. View of Magsagao forest. (Photo by Godfrey Jakosalem).

Vegetation types in the Sulu Archipelago originally included beach forest, lowland rain forest, scrub forest, and mangroves (Stattersfield et al. 1998). There is almost no forest remaining on Jolo (Sulu) Island, and only the eastern and north-central portions of Tawi-Tawi are forested (Stattersfield et al. 1998; Allen 1998). The majority of Tawi-Tawi was selectively logged in the 1960s and early 1970s (Allen 1998). Sibutu and Simunul Islands have been largely cleared (Stattersfield et al. 1998) although a small forest patch in Simunul support populations of the Critically Endangered Philippine cockatoo, Blue-naped parrot (*Tanygnathus lucionensis*), and Blue-backed parrot (*T. sumatranus*) (Dutson et al. 1992). The last forests of Sanga-Sanga were cleared in 1992-1993. The island of Bongao used to support lowland beach/dipterocarp forests where an unidentified jungle flycatcher was collected in 1973 but has not been observed since (Dutson et al. 1992). Small islands in the Tandubas group (which also includes Tawi-Tawi and Sanga-Sanga) still have small forest tracts that reportedly maintain populations of the endemic Sulu bleeding-heart and Sulu hornbill (Stattersfield et al. 1998). Much of the remaining forests in the archipelago were primarily located in the municipalities of Panglima Sugala and Languyan. Dominant species includes dipterocarp e.g. *Anisoptera*, *Dipterocarpus*, *Hopea*, and *Shorea*. Little information is available on

the remaining forest.

Table 1. Distribution patterns of threatened and restricted-range species in Sulu and Tawi-Tawi archipelago

Species	Sulu	Tawi-tawi	Sibutu	Sitangkai
Sulu hornbill <i>Anthracoceros montani</i> ***	<input type="checkbox"/>	<input type="checkbox"/>		
Grey Imperial pigeon <i>Ducula pickeringii</i>			<input type="checkbox"/>	<input type="checkbox"/>
Yellowish bulbul <i>Ixos everetti</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sulu bleeding-heart pigeon <i>Gallicolumba menagei</i> ***	<input type="checkbox"/>	<input type="checkbox"/>		
Tawi-tawi brown dove <i>Phapitreron cinereiceps</i> **		<input type="checkbox"/>		
Celestial Monarch <i>Hypothymis coelestis</i> *				
Philippine needletail <i>Mearnsia picina</i> *		<input type="checkbox"/>		
Blue-winged Raquet-tail <i>Prioniturus verticalis</i> ***		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mantanani Scops owl <i>Otus mantananensis</i>			<input type="checkbox"/>	<input type="checkbox"/>
Sulu hawk owl <i>Ninox reyi</i>	<input type="checkbox"/>	<input type="checkbox"/>		
Sulu pygmy woodpecker <i>Dendrocopus ramsayi</i> ***	<input type="checkbox"/>	<input type="checkbox"/>		
Sulu Woodpecker <i>Dryocopus suluensis</i> *	<input type="checkbox"/>	<input type="checkbox"/>		
Rufous-lored Kingfisher <i>Todiramphus winchelli</i> *	<input type="checkbox"/>	<input type="checkbox"/>		
Christmas Island Frigatebird <i>Fregata</i> ***		<input type="checkbox"/>		
Sulu hanging parot <i>Loriculus (philippensis) bonapartei</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Philippine Cockatoo <i>Cacatua haematuropygia</i> ***	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Black-bibbed Cicadabird <i>Coracina mindanensis</i> *		<input type="checkbox"/>		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	9	14	6	6
<input type="checkbox"/> <input type="checkbox"/> Present	<input type="checkbox"/> Extinct	<input type="checkbox"/> Possibly extinct		
* Vulnerable	** Endangered	*** Critically Endangered		

3.1 Previous Ornithological Surveys

The first ornithological collection in Sulu – Tawi-Tawi archipelago was conducted in 1891. Hachisuka in early 1970s duPont and Rabor (1973a) spent 22 days in December 1971 to collect wildlife but failed to record the Sulu bleeding-heart. Twenty-two years after, Lambert (1993) visited Tawi-Tawi in September but also did not record the Sulu bleeding-heart pigeon. In 1994, primary forest cover in Tawi-Tawi were cleared but larger tracts of badly degraded forests still remain

(Stattersfield *et al.* 1998). The smaller island of Sibutu and Simunul have both been largely cleared of forests cover (Allen 1999). Both the Sulu hornbill and Sulu bleeding-heart pigeons were reported in three islands of the Tandubas group in 1994 (Diesmos and Pedregosa 1995). Haribon Foundation Inc. visited at least seven sites in 2004 and 2007 respectively and records are shown in Table 1. Birdwatchers have regularly visited the island and documented presence of threatened and endemic species including the Sulu hornbill, Blue-winged Raquet-tail and the Tawi-Tawi brown dove.

3.2 Objectives

This study aims to provide an update on the conservation status of the threatened species and habitats of Tawi-Tawi Island particularly in Panglima Sugala. We provide here the preliminary results of the rapid site assessment conducted in Tawi-Tawi archipelago.

- Review and update biodiversity information on Tawi-Tawi as well as neighboring islands.
- To conduct site visit to accessible forests areas in Tawi-Tawi as well as rapidly assess the status of the habitats e.g. identify indicator species
- To meet and present the global importance of the biodiversity of Sulu archipelago to key respondents and decision-makers

3.3 SITES VISITED

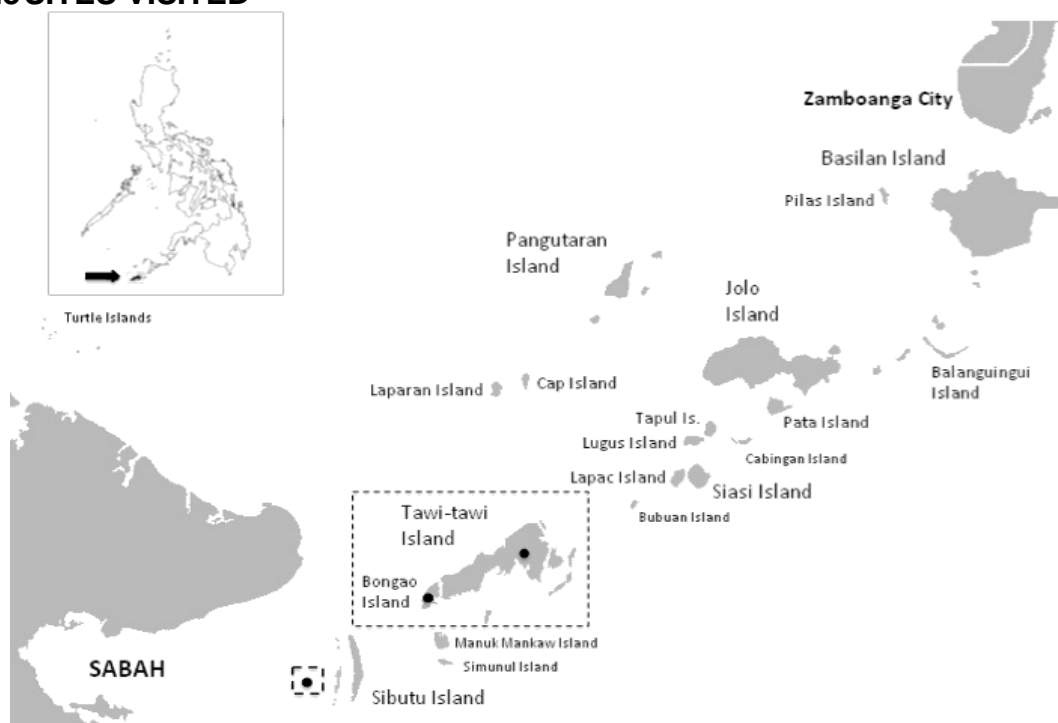


Fig 3. Location of survey sites in Tawi-Tawi, Panguan and Maldanas Islands, Philippines.

We visited a total of four sites in Tawi-Tawi archipelago covering four islands from 30 September 2017 to 2 October 2017. We also met with key persons from Department of Environment and Natural Resources of Autonomous Region of Muslim Mindanao (DENR – ARMM); Provincial Environment and Natural Resources – Sibugay; Mindanao State University – Tawi-Tawi College of Technology and Oceanography; Tawi-Tawi Regional Agroforestry College (TRAC); local communities from Upper Malum watershed in Panglima Sugala, Panglima Sugala key officials, former Chancellor of MSU Tawi-Tawi TCTO and staff from Protect Wildlife Project of USAID. We asked and validated reports on presence of forest cover and to some extent the quality of the forest.

Bongao Peak or Bud Bongao – Bud Bongao or Bongao Peak was declared as a Local Conservation Area by the Municipal Government of Bongao. The lower sections of the hill were now planted with coconuts and other fruit trees with only the steep ravines and inaccessible areas containing remnant native species of trees (fig. 1).

Upper Malum watershed, Panglima Sugala - We followed the mining road leading to Sitio Upper Malum of Barangay Busay, Panglima Sugala in Tawi-Tawi Province. The road was partly paved and as soon as the dirt road starts, degraded secondary forests in between patches of agricultural clearings planted with cassava and other staple can be seen along the road. The dirt road ends on the logged-over secondary forest where it leads to established trails leading to the forest interior (fig. 2). At least three households were observed along the forest trail. We passed by a number of streams along gullies and converges to form the Malum river downstream.

The forest area we visited was mostly logged-over secondary type with canopy trees reaching 25-meter-tall and emergent as high as 40-meters tall. The understory was thick and dense with climbing herbaceous and woody vines as well as fish tail palms and tree wildlings. Decaying logs of varying ages and sizes were observed inside clearings every 20 meters inside the forests. Leaf litter was moderately thick (n=20; 3-5 cm) and most shed leaves were still intact. *Ficus* and strangler figs were common and were bearing ripe fruits. A more intact forest extends to Lambog northeast of Upper Malum.

Sanga-Sanga, Bongao – There was no forest observed in Sanga-Sanga except for mangroves and few patches of trees and remnant forest trees in between cassava, coconuts and fruit trees. Bird observations were limited mostly to coastal areas and mudflats. Birds were identified as much as possible to the species level using a 10x40 roof-type binoculars and taking photos of birds. Effort was made to count birds feeding on mudflats during low tide.



Fig. 4. View of Panguan Island and forest. (Photo by Godfrey Jakosalem).

Panguan Island (4°42'34.99"; 119°1'57") - We visited the island last 1 October 2017 with the Philippine Navy and Philippine Marine Corps aboard BA-485 MK2 multi-purpose attack craft (MPAC). The island was about six hectares with a well-developed beach forest and extensive fine, white sand beaches and sand bars, coral reefs and seagrasses. At least five Badjao families live on the island together with the 10th Marine Battalion Landing Team of the Philippine Marine Corps that occupied one-fourth of the northern section of the island. The beach forests were mostly composed of balok-balok trees, *Terminalia*, coconuts, beach forest trees with average canopy height of 15 meters and thick understory. No existing trails in the beach forest. This is the first ornithological observations on the island.

Maldanas Island (4.72137°N; 119.14508°E) - Briefly visited the island on 1 October 2017 with the Philippine Navy and Philippine Marine Corps aboard BA – 485 Mk2 Multi-Purpose Attack Craft (MPAC). Maldanas was a flat island of about 10 hectares surrounded with fine, white sand beaches. It was dominated by planted coconut palms and beach forest trees. Only the marines stationed on the island lives here. This is the first ornithological observations on the island.

IV. METHODS

Coordination and planning activities was conducted in collaboration through DENR PENRO – Sibugay, Dr. Filemon Romero for Province of Tawi-Tawi and local

schools as well as with Colonel Romulo Quemado for Panglima Sugala, visit to Panguan and Maldanas Islands. Activities conducted were as follows:

4.1 Bird Observations

Bird observations were conducted following 2-meter wide trails established inside the forest of Upper Malum and observing birds visiting fruiting trees. Observations using 10x42 binoculars and listening to bird calls started from 6:30AM to 4PM in the afternoon. Effort was made to photograph birds observed in the area. Vegetation characteristics (e.g. tree height; diameter at breast height; canopy cover; leaf litter; palms, woody and herbaceous vines; decaying logs and lumber; distance to nearest trail/clearing) were also recorded.

Bird observations in smaller islands e.g. Panguan and Maldanas Islands were limited to listing birds seen and heard calling during the brief visit. We spent about four hours (08:00hrs – 12:00hrs) in Panguan and an hour in Maldanas (13:30hrs – 14:30hrs).

4.2 Interviews with key informants

Interviews were also conducted with key informants living close to the forests in Upper Malum, local bird guides in Panglima Sugala, visiting birdwatchers and photographers, DENR personnel.

V. RESULTS

5.1 Status of the Forest Habitats

The only remaining forest reported on Jolo (Sulu) Island is the forest surrounding the steep slopes of the crater of Bud Dajo or Mt. Dahu Natural Park declared through Proclamation No. 261 on February 28, 1938 encompassing 213 hectares (530 acres) of land (Mallari *et al* 2000; Collar *et al* 1999; Stattersfield *et al* 1998; Crosby *et al* 1992). This was one of the priority sites identified by the Protected Areas Management Enhancement Project of GIZ from 2014-2016. No updates were reported on the area.

The remaining forests in Tawi-Tawi Islands reported in 2006 (Tabaranza *et al* 2009) appear to be significantly reduced. Most of the forest reported in the Municipality of Languyan in 2006 had been cleared and the remaining forests are more concentrated in the Municipality of Panglima Sugala.

Much of the forests in the political jurisdiction of Tandubas in Tawi-Tawi Island were also cleared. Small islands in the Tandubas group still retain mangrove forest and fringing beach forest vegetation. In 2006, Tabranza *et al* (2006) reported a mosaic of molave forest, grasslands with few small trees and a relatively dense lowland dipterocarp forest in Sitio Parangan, Brgy. Himba, Municipality of

Tandubas (5° 16'53.16" N, 120° 11'51.48") with highest elevation of about 500 meters above sea level. No remaining forests were reported by the locals. Further to this, Sibutu and Simunul Islands have been largely cleared (Stattersfield et al. 1998) although a small forest patch of beach forests survives in Simunul. The last forests of Sanga-Sanga were cleared in 1992-1993 (Allen 1998).

The island of Bongao used to support lowland beach/dipterocarp forests. This was cleared to paved way for coconut plantation. Bud Bongao has been declared as a Local Conservation Area with development leading towards tourism development e.g. cemented steps, railings and viewing decks developed in the area.

5.2 Bird Species Composition and Distribution

A total of 69 species of birds, out of the 164 species of birds known to occur on the island, were recorded during the visit in Tawi-Tawi. Of the 69, five are threatened and 20 are subspecies endemic to Sulu and Tawi-Tawi archipelago. Of these, four are Critically endangered (Sulu hornbill, Blue-winged Racquet-tail and Philippine Cockatoo and Christmas Island Frigate bird *Fregata andrewsi*); one Endangered (e.g. Tawi-Tawi brown dove) and two were Vulnerable (e.g. Sulu woodpecker and Chinese Egret).

A total of 11 migratory birds were observed in Bongao, two in Tawi-Tawi and 34 in Panguan Island. This includes the Endangered Far Eastern Curlew, Endangered Great Knot and Vulnerable Chinese Egret.

Table 2. List of bird species recorded in Tawi-Tawi. Note that 200 records were taken from Kennedy *et al* (2000) that includes Bongao, Sanga-Sanga, Tawi-Tawi and Jolo; the 1998 records were taken from Allen (1998); 2004-2007 were taken from Tabaranza *et al* (2008); T-Tawi-Tawi; B-Bongao; P-Panguan Island; M-Maldanas Island and J-Jolo.

Species Name	1998	2000	2004-2007	T	B	P	M	J
Wandering Whistling duck <i>Dendrocygna arcuata</i>		X						
Tufted duck <i>Aythya fuligula</i>		X						
Little Grebe <i>Tachybaptus ruficollis</i>		X						
Philippine Megapode <i>Megapodius cumingi</i>	X	X	X					X
Small buttonquail <i>Turnix sylvatica</i>			X					X
Blue-breasted buttonquail <i>Coturnix chinensis</i>	X	X						X
Red junglefowl <i>Gallus</i>	X	X	X	2				X
White-eared brown dove <i>Phapitreron leucotis occipitalis</i>		X	X					X
Tawi-tawi brown dove <i>Phapitreron cinereiceps</i>	X	X	X	3				
Pink-necked green pigeon <i>Treron vernans</i>	X	X	X		4			X
Pompadour green pigeon <i>Treron pompadora everetti</i>	X	X	X	2	1			X
Black-naped fruit dove <i>Philonopus melanospila</i>	X	X	X	7				X

Green imperial pigeon <i>Ducula aenea</i>	X	X	X	24				
Pied Imperial pigeon <i>Ducula bicolor</i>		X			1	6		X
Grey imperial pigeon <i>Ducula pickeringii</i>		X	X					X
Pink-bellied Imperial Pigeon <i>Ducula poliocephala</i>		X						
Philippines Cuckoodove <i>Macropygia phasianella</i>	X	X	X	2				
White-throated pigeon <i>Columba vitiensis</i>		X						
Emerald dove <i>Chalcophaps indica</i>	X	X	X	2	1			X
Island Collared Dove <i>Streptopelia bitorquata</i>		X			2			
Zebra dove <i>Geopelia striata</i>			X	17	8			
Spotted dove <i>Streptopelia chinensis</i>	X	X	X	12	4			
Sulu bleeding-heart pigeon <i>Gallicolumba menagei</i>		X		?				
Nicobar pigeon <i>Caloenas nicobarica</i>	X	X	X					X
Savanna nightjar <i>Caprimulgus affinis</i>		X	X		1			
Grey nightjar <i>Caprimulgus indicus</i>		X						
House swift <i>Apus affinis</i>		X						
Glossy Swiftlet <i>Collocalia bagobo</i>	X	X	X	7	16	6	14	
Philippine needletail <i>Mearnsia picina</i>	X	X	X					
Whiskered treeswift <i>Hemiprocne comata</i>		X	X					
Grey-rumped Treeswift <i>Hemiprocne longipennis</i>		X						
Greater Coucal <i>Centropus sinensis</i>	X	X	X	4				X
Lesser Coucal <i>Centropus bengalensis</i>	X	X			1			X
Chestnut-winged cuckoo <i>Clamator coromandus</i>		X						
Common Koel <i>Eudynamis scolopacea</i>	X	X	X		1	1		X
Plaintive Cuckoo <i>Cacomantis merulinus</i>			X	2	1			
Rusty-breasted cuckoo <i>Cacomantis variolosus</i>	X	X	X	3				
Little Bronze Cuckoo <i>Chrysococcyx russatus</i>	X	X						
Oriental Cuckoo <i>Cuculus saturatus</i>		X						
Indian Cuckoo <i>Cuculus micropterus</i>		X						
Drongo Cuckoo <i>Surniculus lugubris</i>	X	X						
Barred Rail <i>Gallirallus torquatus</i>			X	2	2	1		
Slaty-breasted Rail <i>Gallirallus striatus</i>		X						
Slaty-legged crane <i>Rallina eurizonoides</i>			X			?		
Slaty-breasted crane <i>Porzana fusca</i>								X
White-browed Crane <i>Porzana cinerea</i>		X			1			
White-breasted waterhen <i>Amauornis phoenicurus</i>	X	X	X	1	1			X
Plain Bush Hen <i>Amauornis olivaceus</i>		X						
Eurasian Coot <i>Fulica atra</i>		X						
Streaked Shearwater <i>Calonectris leucomelas</i>		X						X
Bulwer's Petrel <i>Bulweria</i>								X
Lesser Frigatebird <i>Fregata ariel</i>		X	X	X	1	12		X
Greater Frigatebird <i>Fregata minor</i>		X		X		4		X
Christmas Island Frigatebird <i>Fregata andrewsi</i>						1		
Yellow bittern <i>Ixobrychus sinensis</i>								X
Cinnamon Bittern <i>Ixobrychus cinnamomeus</i>		X						
Grey Heron <i>Ardea cinerea</i>				1				
Great-billed heron <i>Ardea sumatrana</i>		X		X				

Purple heron <i>Ardea purpurea</i>		X	X	1				X
Great Egret <i>Egretta alba</i>			X		4			
Intermediate egret <i>Egretta intermedia</i>					6	2		
Little Egret <i>Egretta garzetta</i>			X		16	1		
Chinese Egret <i>Egretta eulophotes</i>					5			
Eastern reef egret <i>Egretta sacra</i>		X			4	2		
Javan pond heron <i>Ardeola speciosa</i>					3			
Little heron <i>Butorides striatus</i>		X			3	3		
Cattle egret <i>Bubulcus ibis</i>	X	X	X	24	12	1		X
Rufous-night heron <i>Nycticorax caledonicus</i>		X	X		1	1		X
Black-crowned night heron <i>Nycticorax</i>			X		1	2		
Red-footed Booby <i>Sula</i>		X						X
Oriental Darter <i>Anhinga melanogaster</i>								X
Grey-tailed tattler <i>Heteroscelus brevipes</i>		X			2			X
Asian Golden Plover <i>Pluvialis fulva</i>		X						
Little Ringed Plover <i>Charadrius dubius</i>		X						
Kentish Plover <i>Charadrius alexandrinus</i>		X						
Malaysian Plover <i>Charadrius peronii</i>		X						
Greater Sand Plover <i>Charadrius leschenaultii</i>		X						
Green Sandpiper <i>Tringa ochropus</i>		X						
Grey plover <i>Pluvialis squatarola</i>						1		
Whimbrel <i>Numenius phaeopus</i>		X			1			X
Wood Sandpiper <i>Tringa glareola</i>		X			2			X
Common sandpiper <i>Actitis hypoleucos</i>		X			1	1		X
Black-winged stilt <i>Himantopus</i>					5			
Ruddy Turnstone <i>Arenaria interpres</i>		X						
Swinhoe's Snipe <i>Gallinago megala</i>		X						
Oriental Pratincole <i>Glareola maldivarum</i>		X						
Parasitic Jaeger <i>Stercorarius parasiticus</i>		X						
Gull-billed tern <i>Gelochelidon nilotica</i>		X				16		X
Black-naped tern <i>Sterna sumatrana</i>		X			3	4		X
Great crested tern <i>Sterna bergii</i>		X			2	10		
Whiskered tern <i>Chlidonias hybridus</i>					6	24		
Common tern <i>Sterna hirundo</i>		X						
Bridled tern <i>Sterna anaethetus</i>		X						
Barred Honeybuzzard <i>Pernis celebensis</i>		X						
Oriental Honeybuzzard <i>Pernis ptilorhynchus</i>		X						
Black-shouldered Kite <i>Elanus caeurulus</i>		X						
Eastern Marsh Harrier <i>Circus spilonotus</i>		X						
Osprey <i>Pandion haliaetus</i>					1	1		
Brahminy kite <i>Haliastur indus</i>		X	X	2	2			X
White-bellied sea-eagle <i>Haliaeetus leucogaster</i>		X	X		1	1		X
Philippine serpent-eagle <i>Spilornis holospilus</i>	X	X	X	?				
Black Kite <i>Milvus migrans</i>					1			
Japanese sparrowhawk <i>Accipiter gularis</i>		X						
Grey-faced Buzzard <i>Butastur indicus</i>		X						
Chinese Goshawk <i>Accipiter soloensis</i>		X						
Oriental Hobby <i>Falco severus</i>		X						
Grass Owl <i>Tyto capensis</i>		X						
Sulu hawk owl <i>Ninox reyi</i>	X	X	X	1				X
Brown hawk owl <i>Ninox scutulata</i>		X						

Mantanani scops owl <i>Otus mantananensis sibuensis</i>								X
Sulu hornbill <i>Anthracoceros montani</i>	X	X	X	6				
Blue-throated bee-eater <i>Merops viridis</i>				3				
Blue-tailed bee-eater <i>Merops philippinus</i>	X	X						X
Ramsay's pygmy woodpecker <i>Dendrocopus maculatus ramsayi</i>	X	X	X	1				X
Sulu Woodpecker <i>Drycopus javensis suluensis</i>	X	X	X	2				X
Dollarbird <i>Eurystomus orientalis</i>	X	X	X	1				
Common kingfisher <i>Alcedo atthis</i>		X	X	2	1			X
Blue-eared kingfisher <i>Alcedo meninting</i>		X						X
Oriental dwarf kingfisher <i>Ceyx erithacus rufidorsa</i>		X						
Dimorphic kingfisher <i>Ceyx lepidus</i>	X	X	X	2				X
Stork-billed kingfisher <i>Halcyon capensis gigantea</i>		X	X		1			X
White-throated kingfisher <i>Halcyon smyrnensis</i>				1				
Black-capped kingfisher <i>Halcyon pileata</i>		X						
Rufous-lored kingfisher <i>Todiramphus winchelli alfredi</i>	X	X		3				
Collared kingfisher <i>Todiramphus chloris</i>	X	X	X	5	7	4	1	X
Ruddy kingfisher <i>Halcyon coromanda claudiae</i>		X	X	1	1			
Philippine Cockatoo <i>Cacatua haematurus pygia</i>	X	X		2				X
Great-billed parrot <i>Tanygnathus megalorynchus salvadorii</i>			X					
Blue-naped parrot <i>Tanygnathus lucionensis</i>	X	X						X
Blue-backed parrot <i>Tanygnathus sumatranus burbidgii</i>	X	X	X					X
Blue-winged Racquet-tail <i>Prioniturus platenae</i>	X	X	X	7				X
Colasisi <i>Loriculus philippensis bonapartei</i>	X	X	X	12	2			X
Hooded Pitta <i>sordida</i>	X	X	X					X
Red-bellied Pitta <i>erythrogaster</i>		X						X
Golden-bellied flyeater <i>Gerygone sulphurea</i>			X	5	7			
Black-bibbed Cicadabird <i>Coracina mindanensis everetti</i>		X	X					
Bar-bellied Cuckooshrike <i>Coracina striata guillamardi</i>	X	X	X					X
Pied triller <i>Lalage nigra</i>	X	X	X		3	1		X
White-vented Whistler <i>Pachycephala homeyeri</i>	X	X	X	3				
Whistler						17		
Black-naped Oriole <i>Oriolus chinensis suluensis</i>	X	X	X	5	2	4		X
Philippine Oriole <i>Oriolus steerii cinereogenys</i>	X	X	X	3		3		X
White-breasted woodswallow <i>Artamus leucorhynchus</i>		X	X		12			X
Spangled drongo <i>Dicrurus hottentottus</i>	X	X	X	8				X
Crow-billed drongo <i>Dicrurus annectans</i>		X						X
Philippine Pied fantail <i>Rhipidura nigritorquis</i>		X	X		2			X
Brown shrike <i>Lanius cristatus</i>	X	X			4			
Long-tailed shrike <i>Lanius schach</i>		X			1			X

Tiger Shrike <i>Lanius tigrinus</i>		X						
Coppersmith barbet <i>Megalaima haemacephala</i>				2				
Yellow-vented bulbul <i>Pycnonotus goaivier</i>	X	X	X	21	16	13		X
Yellowish bulbul <i>Hypsipetes everetti haynald</i>	X	X	X	11				X
Brown tit babbler <i>Macronous striaticeps kettiewelli</i>	X	X	X	2				
Siberian Blue Robin <i>Luscinia cyane</i>		X						
Large-billed Crow <i>Corvus macrorhynchus</i>	X	X	X	6	7			X
Philippine magpie robin <i>Copsychus saularis</i>	X	X	X	4	2			
Black-naped monarch <i>Hypothymis azurea</i>		X	X	5	2			X
Celestial Monarch <i>Hypothymis coelestis</i>		X						
Rufous paradise flycatcher <i>Tersiphone cinnamomea</i>		X						X
Mangrove blue flycatcher <i>Cyornis rufigastra</i>		X	X	5				X
Asian Brown Flycatcher <i>Muscicapa dauurica</i>		X						
Grey-streaked flycatcher <i>Muscicapa grisisticta</i>		X						
Rufous-tailed jungle-flycatcher <i>Rhinomyias ruficauda occularis</i>	X	X		1				
Narcissus flycatcher <i>Ficedula narcissina</i>		X						
Blue and White Flycatcher <i>Cyanoptila cyanomelana</i>		X						
Bicolored flowerpecker <i>Dicaeum bicolor</i>			X					
Orange-bellied flowerpecker <i>Dicaeum trigonostigma assimile</i>	X	X		8				
Orange-bellied flowerpecker <i>Dicaeum trigonostigma sibuensis</i>		X		7				
Buzzing flowerpecker <i>Dicaeum hypoleucum</i>	X	X	X	4	2			X
Plain-throated sunbird <i>Anthreptes malacensis wigglesworthi</i>	X	X	X	1				X
Olive-backed sunbird <i>Cinnyris jugularis woodi</i>	X	X	X	6	8	6	2	X
Lovely Sunbird <i>Aethopyga shelleyi arolasi</i>		X	X	1				X
Purple-throated sunbird <i>Nectarinia sperata juliae</i>	X	X	X	1	1			X
Eurasian tree sparrow <i>Passer montanus</i>		X	X		64	27	19	
Yellow wagtail <i>Motacilla flava</i>		X		1	1	1		
Grey Wagtail <i>Motacilla cinerea</i>		X						
White Wagtail <i>Motacilla alba</i>		X						
Richard's pipit <i>Anthus novaeseelandiae</i>		X	X					
Red-throated Pipit <i>Anthus cervinus</i>		X						
Pechora Pipit <i>Anthus gustavi</i>		X						
Citrine canary flycatcher <i>Culicapa helianthea mayri</i>		X	X	1				
Elegant tit <i>Parus elegans bonggaoensis</i>		X						X
Elegant tit <i>Parus elegans suluensis</i>	X	X	X	7				X
Blue Rock Thrush <i>Monticola solitarius</i>		X						
Eye-browed thrush <i>Turdus obscurus</i>	X	X		1				
Chestnut-capped ground thrush <i>Zoothera interpres</i>	X	X	X					
Rufous-tailed tailorbird <i>Orthotomus sericeus</i>				3	1			X
Barn Swallow <i>Hirundo rustica</i>	X	X		4	5	4	6	X

Pacific swallow <i>Hirundo tahitica</i>	X	X	X	24	12	2	3	X
Philippine leaf warbler <i>Phylloscopus olivaceus</i>	X	X	X					
Kamchatka Leaf warbler <i>Phylloscopus examinandus</i>						1		X
Japanese Leaf warbler <i>Phylloscopus xanthodryas</i>						1		X
Gray's Grasshopper warbler <i>Locustella fasciolata</i>		X						
Glossy starling <i>Aplonis panayensis</i>	X	X	X	68	23			
Chestnut-cheeked Starling <i>Sturnus philippensis</i>		X						
Coleto <i>Sarcops calvus lowii</i>	X	X	X	8				X
Everett's white-eye <i>Zosterops everetti mandibularis</i>	X	X	X	21				X
White-bellied Munia <i>Lonchura leucogastra</i>		X	X	4	16	8	2	X
Black-headed munia <i>Lonchura malacca</i>		X	X	9	2	12	6	X
Total number of species	65	164	133	69	65	34	8	83
Total number of Philippine endemics	19	22	19	16	3			10
Total number of restricted-range species	8	14	10	10	3			10
Total number of threatened species	4	8	3	5	4	1		3
Total number of migratory species	1	28	2	2	11	10		8

5.3 Threatened species accounts



Fig. 5. Critically endangered Sulu hornbill. (Photo by Bim Quemado).

We recorded a total of five threatened birds in Tawi-Tawi, four in Bonggao, and one in Panguan Island e.g. Christmas Island Frigatebird. Of these species, four are restricted to Tawi-Tawi and Sulu archipelago (Table 1). Below are the accounts of threatened species recorded during the trip.

Philippine Cockatoo *Cacatua haematuropygia*; locally called “bukai” or “agap”
Critically Endangered

The Philippine Cockatoo had been reported in a number of localities in Jolo, Tandubas, Sibutu, Sitangkai, North Obian and Tawi-Tawi Group of Islands. We observed a pair of Philippine Cockatoo in the forest edge in Upper Malum. Both birds perched on a branch in one of the trees on the forest edge. The birds stayed for about 5 minutes allowing us to take documentary shots before it flew towards the direction of the forest interior. Locals have also reported of the presence of the species in the area seeing small flocks of 2-4 individuals.



Fig. 6. A pair of critically endangered Philippine Cockatoo were observed in Upper Malum Forest. (Photo by Godfrey Jakosalem).

Sulu hornbill *Anthracoceros montani*; locally called “tausi” or “tawsi”

Endemic: Jolo, Sanga-Sanga and Tawi-Tawi Islands; Critically Endangered

We observed a total of six mature individuals plus 2 individuals heard calling from the opposite ridge of Upper Malum watershed in Panglima Sugala last 30

September 2017. At least six individuals were also seen in June 2017 in relatively the same area. No immature was sighted.

Locals have also reported seeing Sulu hornbills in forest interior in Tarawakan in Bongao, Sitio Lambug in Parangan, Panglima Sugala; Dungun and in Lubbuk. The largest numbers reported in the last five years was 10 individuals in 2014 in Dungun forest. This is five individual less than the reported number in 1999 (Allen 1999). At least two groups of six individuals were regularly observed in two separate locations in Upper Malum. Most records of encounter of the species are 2-3 individuals. No immature had been reported.

One of the locals living close to the forest in Upper Malum reported finding a nest on a tree hole of a felled tree with an immature nestling that looks like the Sulu hornbill sometime in May 2015. Only one nestling was found inside the nest. When asked how did they know it was the Sulu hornbill, the locals described the bird as similar to the color and form of the Sulu hornbill and the parents were observed frantically moving close to the fallen tree. The tree was a dipterocarp, at least 20-meter-tall with a nesting hole located close to the first lower branch of the tree. This is the first reported breeding record of the Sulu hornbill (fig 3).

No forests are left in Sanga-Sanga and Jolo has a tiny patch remaining on the steep slopes of Mt. Dahu Natural Park. The Sulu hornbill is now concentrated on the island of Tawi-Tawi between Languyan, Panglima Sugala and Tandubas. With the remaining forests concentrated on Panglima Sugala and the almost total deforestation in Jolo and Sanga-Sanga, the bird may now be only found within 40% of its original distribution range.

Blue-winged Racquet-tail parrot *Prioniturus verticalis*; Endangered

The Blue-winged Racquet-tail had been reported in a number of localities in Jolo, Tandubas, Sibutu and Tawi-Tawi Group of Islands. We recorded at least seven (7) individuals moving from one tree to another but stayed relatively in the same area. Locals have reported seeing the birds in groups of six to 10 individuals in the area. Sulu woodpecker *Picoides ramsayi*.

We observed one individual perched on an exposed trunk inside the forest. The bird stayed motionless for at least a minute before starting to move and search for food along the tree trunk. We heard two more individuals at least 100 meters away.

Rufous-lored kingfisher *Todiramphus winchelli*

We heard at least three individuals along the forest trail including one individual perched close enough for a documentary shot. The bird stayed for about 10 minutes before moving to a different perch. This bird has also been reported in other localities in Tawi-Tawi Group of Islands.



Fig. 7. Rufous-lored kingfisher subspecies *alfredi* for the islands for Tawi-Tawi, Jolo, Sanga-Sanga and Bongao (Photo by Jonet Carpio).

Tawi-Tawi brown dove *Phapitreron cineireiceps*

We observed a total of four Tawi-Tawi brown doves feeding on the ripe fruits of the *Ficus* tree. Sometimes the Philippine Oriole, Black-naped Oriole, Black-naped fruit dove, Sulu hornbill, Coleto, Yellowish Bulbul and Philippine Macaque would join and feed on the ripe fruits. Two more individuals were heard calling in separate locations.

Sulu bleeding-heart pigeon *Gallicolumba menagei*; locally called “kumot”
Critically Endangered

Known only from two male specimens on Tawi-Tawi with unconfirmed reports from the islands of Siasi, Tandubatu, Dundangan, Baliungan and Simunul (Dickinson *et al* 1991; Allen 1998; Collar *et al* 1999; Kennedy *et al* 2000; Tabaranza *et al* 2009). Kennedy *et al* (2000) listed the species as monotypic – found only in Tawi-Tawi. There were unconfirmed sightings of this species in Jolo but until now, no clear evidence that the form on Jolo is of this species (Collar *et al* 1999).

We saw briefly a medium-sized brown dove walking along the dark understory of the forest trail (I only saw the dark brown back) but PGJ who first sighted the bird saw the sides of the white belly and breast before the bird flew low and out of sight. We search for the bird but we did not find it. We are not aware of any other species of ground dove with a white belly and breast that occurs on the island. But it is very

likely that it could be the Sulu bleeding-heart pigeon (although we would need more evidence than just a brief encounter). We are still confident of what we saw.

One of the locals in the area reported trapping the bird in 1994(?) inside the forest close to a peat land in Bongao. They locally call the bird “kumot” referring to the call of the bird. He described the bird as a ground dove with a white breast with a light-yellow patch.

Christmas Island Frigatebird *Fregata andrewsi*; Critically Endangered

At least one individual was observed soaring together with Lesser frigatebirds and Greater frigatebirds on Panguan Island. The bird moved close to the island enough for us to take decent photographs and soared for about an hour before disappearing.

5.4 Species that needs further taxonomic study



Fig. 8. A White-vented Whistler observed in Panguan Island. (Photo Godfrey Jakosalem).

A bird that closely resembled a Whistler *Pachycephala* was observed on Panguan Island last 1 October 2017. The bird had a hooked bill with prominent whiskers. It generally had rufous-brown above with side of head slightly lighter, ear-coverts

more reddish-brown. The top of head, back and tail was dark brown. Like the nominate *homeyeri*, the chin, throat, belly down to the vent but with light brown streaking from the chin down to the white belly. The vent was white. Bill with a slight hook on the upper bill was black and the legs were pearl grey.

The bird moved in pairs or in small groups of four to six individuals as it searches for insects among leaves and branches of trees in the island. The bird also has a distinctive call *peep-peep peep-peep-peep* that it occasionally gives as it moves from one branch to another. A more detailed discussion will be published separately (*in prep*).

5.5 Other significant records



Fig. 9. Chinese Egret observed in Bongao (Photo by Godfrey Jakosalem).

Chinese Egret *Egretta eulophotes*– Five individuals were observed feeding along the seagrass beds along the coast close to Sunburst Resort in Bongao last 2-3 October 2017. The bird was observed feeding together with Little Egret, Intermediate Egret, Great Egret, Whimbrel, Grey-tailed tattler, Common Sandpiper, Marsh Sandpiper and Javan pond heron.

Grey Heron – a lone individual was observed briefly perched on a mangrove tree before it flew towards the direction of the coastal area along the coast in Panglima Sugala.

Intermediate Egret *Egretta intermedia*– We first observed the species on a seagrass bed along the coast of Bongao on 29 September 2017. We saw a small flock of Egrets along the coast of Bud Tinandokan feeding along with Little Egret, Great Egret, Marsh Sandpiper and Javan Pond Heron.

Black-winged Stilts *Himantopus* – Five individuals of Black-winged Stilts was observed on a pond in Bongao last 3 October 2017.



Fig. 10. Black-winged Stilts observed in Bongao (Photo by Godfrey Jakosalem).

Javan Pond Heron – A total of three individuals were observed feeding along the seagrass beds along the coast close to Sunburst Resort in Bongao. The bird was observed feeding together with Little Egret, Intermediate Egret, Great Egret, Grey Plover, Marsh Sandpiper and Chinese Egret.

Grey Plover – a lone individual was observed mixed with other species of egrets and sandpipers along the seagrass beds in Bongao last 2 October 2017.

Whiskered Tern *Sterna bergii*– Observed the bird in several localities in Bongao and Panglima Sugala, mostly along coastal areas.

Osprey *Pandion haliaetus*– One individual was observed passing through the coasts of Bongao (2 October 2017).

Black Kite *milvus*– One individual was observed perched on the roof of a building along the coastal area early morning on 3 October 2017. The bird flew to a nearby tree and stayed for about a minute before it flew towards Bud Bongao.

Blue-throated bee-eater *Merops philippinus*– three individuals were observed perched on an exposed branch of the tree in Upper Malum Watershed.

Coppersmith Barbet *Megalaima haemacephala* - We heard and saw two individuals perched on an exposed branch of the tree calling *pok pok pok pok pok* in a rhythmic manner typical of Coppersmith barbet in Upper Malum Watershed on 30 September 2017. This is the first record of the presence of the species in the area.

Barred Rail *Gallirallus torquatus* – First heard the call on one of the bushes in the town of Panglima Sugala. Another individual was observed along the road en route to the forests.

Zebra dove *Geopelia striata* – A number of individuals were first observed on the coastal areas of Bongao, in Panglima Sugala and along the road in route to Upper Malum watershed.

Rufous-tailed Tailorbird (?) – A tailorbird call similar to Rufous-tailed tailorbird was heard calling a number of times along the forest trail in Upper Malum watershed. The bird was also heard calling along gardens and vegetated areas within Panglima Sugala.

VI. DISCUSSION

6.1 Forest degradation and disappearing habitats

The forests in Bongao has been replaced with coconuts save for the steep rocky sections on Bud Bongao. No forests remain in Sanga-Sanga. In 2006, the forest cover in Tawi-Tawi Group of Islands was estimated at 10,000 hectares with much of the forests remaining were distributed in the municipalities of Languyan, Panglima Sugala and Tandubas (Tabaranza *et al* 2009). Based on available information, it appears that forest cover has significantly reduced with Bongao and Sanga-Sanga stripped off forest cover except for isolated clumps of trees of less than three hectares.

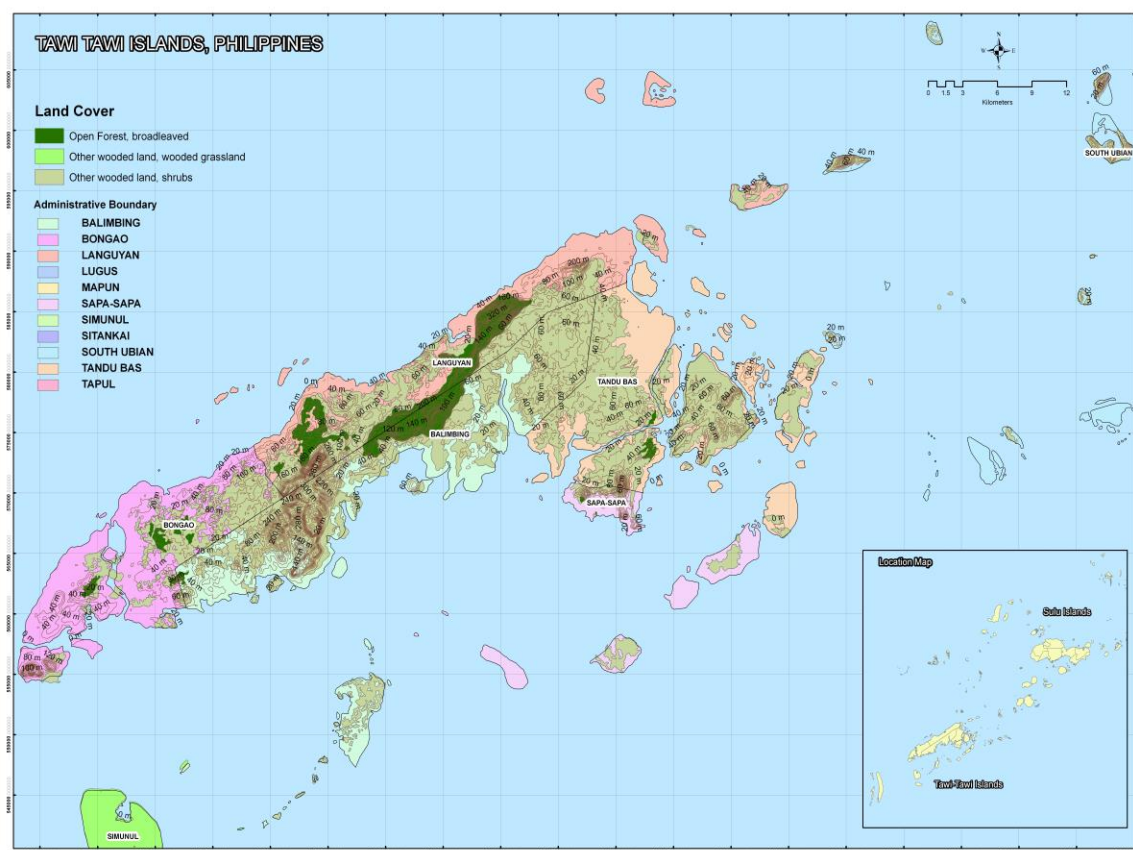


Fig. 11. The forest cover of Tawi-Tawi Island as reported by Haribon Foundation Inc. in 2009 (Tabaranza *et al* 2009).

6.2 Threatened species

There were a number of species of birds recorded in 2004 and 2006 survey of Haribon Foundation that were not encountered in the succeeding surveys, including this visit. This is partly because only a day was spent searching for birds and limited to only one location in Panglima Sugala.

The anecdotal report of breeding Sulu hornbill increases the vulnerability of the already Critically Endangered species. In the previous visits of birdwatchers and the interviews from the locals, there had been no reported record of immature hornbills in the varying months and years the area was visited since 1998.

A number of species of birds that were observed showed remarkable differences in morphology and calls. This is particularly true to the birds recorded in Panguan Island where a bird that looks closely like the whistler showed significant differences in both behaviors and morphology. There is a need for extensive surveys and probably collection of specimens to augment the lack of specimens to work with in studying taxonomic differences in the species and subspecies level.



Fig. 12. The endangered Sulu Hawk Owl and Tawi-Tawi Brown Dove (Photo Bim Quemado).

6.3 Protected areas (terrestrial)

The Mt. Dahu Natural Park of Jolo is the only known protected area declared through Proclamation No. 261 encompassing 213 hectares (530 acres). The remaining forests in Upper Malum watershed in Panglima Sugala has recently been initially proposed as Upper Malum Watershed Act of Autonomous Region of Muslim Mindanao (ARMM). Following the series of consultation meetings, the Local Government of Panglima Sugala is proposing for the declaration of the remaining forests of Panglima Sugala as Panglima Sugala Watershed Conservation and Critical Habitat. Just this early January 2018, at least 10 local communities were identified as TAWSI Rangers – Tawi-Tawi Advocate for Wildlife Support Initiative.

6.4 Conservation challenges and opportunities

Selective cutting of trees targeting large canopy trees were observed in Upper Malum watershed in Panglima Sugala. Trees with diameter at breast height of above 50 cm were primarily targeted for cutting. Most locals own chain saws that they use in cutting trees. Lumber were observed piled up along the road ready for transport. Added to this, a thriving industry was the ship building activities that uses prime wood. This remains to be a significant need to the locals particularly to families and tribe's dependent on fishing.

Hunting of wildlife was also observed with a number of species of birds and mammals were kept as pets by locals. Commonly seen among households are the Black-billed colasisi, Cockatoos including Philippine Cockatoo, doves and slow loris. On the other hand, conservation initiatives of Local Government Units e.g.

Panglima Sugala have largely contributed to reducing increased fragmentation and access to the remaining forests of Tawi-Tawi.

There are at least two academic institutions that has the potential to integrate terrestrial research and conservation program in the island e.g. Mindanao State University – Tawi-Tawi (MSU – Tawi-Tawi) and Tawi-Tawi Regional Agro-forestry College (TRAC). Both institutions have strong marine and coastal conservation programs. The limited opportunities taken on terrestrial conservation and research was largely attributed to the lack of technical expertise and a strong focus on marine conservation.

The Sulu Hornbill Conservation Project, an initiative that started in 2012 with the Philippines Biodiversity Conservation Foundation Inc. in partnership with formerly Protected Areas and Wildlife Bureau (now Biodiversity Management Bureau) of DENR and evolved to include a number of interested institutions, key individuals and mandated agencies.

VII. CONSERVATION RELATED ACTIVITIES CONDUCTED

7.1 Conservation education and public awareness



Fig. 13. Biodiversity lectures in different schools in Panglima Sugala and Bongao (Photo Godfrey Jakosalem & Lisa Paguntalan).

We did school lectures (at least a 100 high school students and teachers in Panglima Sugala); 100 students and teachers from Tawi-Tawi Regional Agroforestry College (TRAC) and Mindanao State University - Tawi-Tawi. We also distributed posters, e-file copies of presentations; photos of Tawi-Tawi species, bird calls; hornbill shirts (Jonet Carpio and Go Share); hornbill stuff toys and Kennedy Bird guide book.

Other things conducted: erected road signages on the importance of Tawi-Tawi species; update checklist of birds with local names (plan to come up with a handbook on biodiversity importance of Tawi-Tawi). Conservation education will remain to be part of the continuing activities targeting schools and maybe local communities

7.2 Policy support for conservation programme

We also had meetings with Mayor Regi-Sahali, Eddile Alih (Executive Secretary of the Provincial Governor Matba); Protect Wildlife of USAID project Dr. Mon Romero and two of his staff who went with us to look for birds in Upper Malum watershed in Panglima Sugala; Vice-chancellors and research faculty of TRAC and MSU – Tawi-Tawi. Salient points discussed were as follows:

- Meeting with DENR ARMM - Provincial Environment and Natural Resources Office in Bongao as well as with CENRO Bongao
- Meeting with PENRO Sibugay of DENR Region 9 as well as with Project Protect Wildlife Field Coordinator in Zamboanga City
- Meeting the with office of the Governor



Fig. 14. Initial coordination meeting with different partners PENRO Tawi-Tawi, DENR region 9 and different stakeholders.

7.3 Constituency Building



Fig. 15. First batch trainees from Panglima Sugala on community-based biodiversity monitoring or hornbill count (Photo Godfrey Jakosalem).

We have discussed with Mayor Rejie Sahali – Generale, DENR PENRO Tawi-Tawi; DENR PENRO Zamboanga Sibugay, Biodiversity Management Bureau and Col. Romulo Quemado the details of the community-based bio-monitoring training e.g. identifying and training locals from Panglima Sugala for bio-monitoring. training will be conducted in Pasonanca Natural Park in Zamboanga City and the locals will go back to the site to do the count and establish the monitoring rails. Some of these locals (if not all) will form part of the watershed/forest wardens in the future.

PENRO Sibugay has a bit of fund to start-up the training of the locals from Panglima Sugala in Zamboanga City. Counterpart funds from Panglima Sugala and Philippines Biodiversity Conservation Foundation Inc. were provided to facilitate the training. A total of 24 participants of which 10 came from Panglima Sugala (six from Barangay Magsaggaw; four from Panglima Sugala LGU); two came from DENR PENRO ARMM; one from CENRO Panglima Sugala, one from CENRO Bongao; one from Western Mindanao State University and the rest came from DENR Region 9 – CENRO Zamboanga City, CENRO Boog; PENRO Zamboanga del Norte; PENRO Zamboanga Sibugay; Zamboanga City Water District Office; Sta. Cruz Islands Protected Landscape and Seascape;

DENR Regional Office. Highlights of the training includes the following:

- Learning visits to two government-managed protected areas (Sta. Cruz Islands Protected Landscape and Seascape and Pasonanca Natural Park; wetlands eco-park of Maritime School)
- Familiarized with the techniques and method of establishing bio-monitoring trails as well as in the conduct of bird monitoring activities
- Learned the basic techniques in identifying birds
- Learned the use of equipment (binoculars, spotting scopes, field guides)
- Identified next steps of activities through a workshop (please see attached Annex 2)

7.4 Community Consultations



Fig. 16. Community-consultations with key community members in Magsaggaw led by Mayor Rejie Sahali – Generale (photos courtesy of Mayor Rejie Sahali – Generale).

Earlier in 2017 Mayor Regie Sahali – Generale has also initially met/consulted with the local communities in Magsagaw area and discuss as to how the Sulu hornbill and the watersheds can possibly be protected. The locals have asked for livelihood support including bard wires to fence off warty pigs that feed on their main staple crop - cassava.

A follow-up meeting last November 2017 was conducted by the Municipality of Panglima Sugala led by Mayor Rejie Sahali – Generale met with the key

leaders and local communities of Barangay Magsaggaw to discuss about watershed protection, biodiversity conservation, the important role of communities and identifying the participants for the community-based bio-monitoring training in Pasonanca, Zamboanga City on December 11-15, 2017.

VIII. MANAGEMENT RECOMMENDATIONS

8.1 Protection of remaining forests and watersheds

The remaining forests in Tawi-Tawi Island were now concentrated in the municipalities of Panglima Sugala and Languyan with patches of logged-over forests still remains in the municipalities of Bongao and Tanduban. These remaining forests serves as the watersheds of the island providing freshwater not only for drinking and domestic use but also for agriculture and industrial use.

The support of local communities surrounding the forests will be critical to the success of the conservation program. There are six key (Tausug and Sama) families or clan relying on the forests resources of the land adjacent to it for their livelihood. It is important to consider culture, history and the relationships of the families in the preparations, development and implementation of the program. The support of the local government of Panglima Sugala will also be critical in ensuring the medium and long-term sustainable initiatives in the area.



Fig. 17. Logged over forest (Photo Godfrey Jakosalem).

While it is important to support the local initiatives of Panglima Sugala, we also strongly suggest that parallel efforts in elevating the local ordinance into the Regional Act or as initial component of NIPAS for the long-term conservation of the forests habitats. Preparatory activities should already take this into consideration (please see next point below).

8.2 Biodiversity survey and mapping

There is a need to conduct detailed biological assessments on flora and fauna of the different islands in the Sulu-Tawi-Tawi archipelago. This can be achieved by involving each of the local government units (at least at the municipal level) in identifying locals who can be trained in community-based biodiversity monitoring activities. The trained locals will be the potential future watershed and wildlife enforcement officers in their respective areas.

To date, the local government of Panglima Sugala had worked closely with PENRO ARMM of Tawi-Tawi in identifying the boundaries of the remaining forests for declaration as Panglima Sugala Watershed Conservation and Critical Habitat through a Municipal Ordinance.

The planned biological, socio-economic and mapping activities should already take into considerations the requirements of a Protected Areas Suitability Assessment standards. The technical support and advise from Biodiversity Management Bureau, DENR Region 9 – PENRO Zamboanga Sibugay and PENRO ARMM Tawi-Tawi would be crucial in ensuring this.



Fig. 18. Consultation meetings with Biodiversity Management Bureau, Mayor Rejie Sahali – Generale, DENR ARMM PENRO Tawi-Tawi, DENR Region 9, PENRO Zamboanga Sibugay, Protect Wildlife Project and Philippines Biodiversity Conservation Foundation Inc. (PBCFI). .

8.3 Habitat rehabilitation

Much of the remaining stands of logged-over forest and regenerating secondary forests could be rehabilitated by replanting framework species of trees e.g. dipterocarps, ipil, mangkoo, etc. The DENR ARMM has already approved a

Regional Act – Sustainable Forest Management Act – which integrates culture and religion in the implementation of the Forestry Law of the Philippines.

8.4 Biodiversity-friendly livelihoods and enterprise

Most of the locals in Tawi-tawi rely on agriculture and fisheries for their livelihood. Main agricultural products were coconut, cassava, rice, fruit trees (e.g. mango, banana, durian, lansones, mangosteen, tambis, marang, rambutan). Livelihoods and enterprise should also look into the impacts for the a). concerns for demand for wood; b). concerns for warty pig/ wildlife conflict; d). concerns for hunting activities to name a few.

IX. LITERATURE

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ANNEX 1: TRAVEL ITINERARY

28 September 2017

- Travel to Zamboanga City (Col. Romulo Quemado from Manila while Lisa Paguntalan and Godfrey Jakosalem came from Bacolod)
- Meeting with PENRO Sibugay/ DENR 9 to finalize activities

29 September 2017

- Travel to Bongao with volunteers from Go Share and Colonel Romulo Quemado
- Met with Dr. Filemon Romero of Mindanao State University – Tawi-Tawi
- Travel to Panglima Sugala; tour in Panglima Sugala town with Municipal Tourism Officer; visit to wetlands and naval base
- School biodiversity lecture with National High School in Panglima Sugala
- Visit to the local market day
- Finalize and prepare for Upper Malum and community outreach activities

30 September 2017

- Site visit to Upper Malum watershed with Colonel Romulo Quemado; Dr. Filemon Romero and two staff of Protect Wildlife;
- Bat Count in Panglima Sugala
- Meeting with Mayor Rejie Sahali - Generale

1 October 2017

- Meeting with MSU-Tawi-Tawi
- Biodiversity Talk with students and research faculty
- Dinner meeting with Mayor Rejie Sahali – Generale

2 October 2017

- Biodiversity Talk with Tawi-Tawi Regional Agroforestry College
- Meeting with Mr. Eddie Alih of Provincial Government of Tawi-Tawi

3 October 2017

- Travel to Zamboanga City
- Meeting with DENR Region 9 – PENRO Sibugay

4 October 2017

- Meeting with Protect Wildlife together with representatives from PENRO Sibugay (Georgina Fernandez)
- Travel back to Bacolod City

ANNEX 2. Workshop results (December 11-15, 2017) of local community participants of Magsagaw, Panglima Sugala and DENR PENRO ARMM for the establishment of Panglima Sugala Wildlife Sanctuary

Plan of activities	Timeframe				Materials needed	Responsible party
	Q1	Q2	Q3	Q4		
Consultation with LGU and other stakeholders					Transportation, food, sound system, camera	DENR, BLGU, LGU
Site reconnaissance (mapping and pre-identification of bio-monitoring trails)					Transpo, GPS, Map, Camera, binoculars, food	DENR, BLGU, LGU
Conduct of training					Training kits, pre-assessment, equipment, food	DENR ARMM, PBCFI, PENRO Sibugay, BLGU, LGU
Actual assessment (biological and socio-economic)					Assessment equipment, camera, GPS, transportation and food	DENR ARMM, PENRO Sibugay, PBCFI, BLGU, LGU
Presentation of Results					Transpo, food, sound system, PowerPoint, food	DENR ARMM, PENRO Sibugay, PBCFI, BLGU, LGU
Program and policy formulation					Enforcement, monitoring equipment	LGU
Implementation and monitoring						DENR ARMM, PENRO Sibugay, BLGU, LGU, Community